Claim Amendments

1. (currently amended) An apparatus, comprising:

one or more heating elements;~~ and~~

~~one or more~~a plurality of elongated beams; and

one or more transverse beams;

wherein the one or more heating elements comprise a heating element, wherein the ~~one or more~~plurality of elongated beams comprise ~~an~~ a first and a second elongated beam, wherein the one or more transverse beams comprise a transverse beam;

wherein the heating element is coupled with the first elongated beam;

wherein the heating element induces a time-varying thermal gradient in the first elongated beam to cause one or more drive oscillations of ~~one or more of~~ the ~~one or more~~ first elongated beam~~beams~~;

wherein a nodal point of the first elongated beam abuts a first face of the transverse beam;

wherein a nodal point of the second elongated beam abuts a second face of the transverse beam;

wherein the heating element cooperates with the first elongated beam to cause one or more drive oscillations of the second elongated beam.

2. (currently amended) The apparatus of claim 1, wherein the heating element employs the time-varying thermal gradient in the first elongated beam to cause one or more thermoelastic reactions in the first elongated beam that effect one or more of the one or more drive oscillations.

3. (currently amended) The apparatus of claim 1, wherein the heating element comprises a resistor;

wherein the resistor conducts a time-varying electrical signal, wherein the time-varying electrical signal induces a Joule heating of the resistor that causes the time-varying thermal gradient in the first elongated beam.

4. (currently amended) The apparatus of claim 1, wherein the heating element induces the time-varying thermal gradient in the first elongated beam to cause the one or more drive oscillations to occur approximately at a natural frequency of the first elongated beam.

5. (canceled) ~~The apparatus of claim 4, wherein the elongated beam comprises a first elongated beam, wherein the one or more elongated beams comprise a second elongated beam, wherein the natural frequency of the first elongated beam is substantially the same as a natural frequency of the second elongated beam;~~

~~wherein a nodal point of the first elongated beam abuts a first face of a transverse beam;~~

~~wherein a nodal point of the second elongated beam abuts a second face of the transverse beam;~~

~~wherein the heating element cooperates with the first elongated beam to cause one or more oscillations of the second elongated beam approximately at the substantially same natural frequency of the first elongated beam and the second elongated beam.~~

6. (currently amended) The apparatus of claim ~~5~~ 1, wherein the heating element oscillates the first elongated beam to stress the transverse beam to cause the one or more drive oscillations of the second elongated beam.

7. (currently amended) The apparatus of claim 1, wherein the heating element induces the time-varying thermal gradient in the first elongated beam to cause the one or more drive oscillations to occur approximately at a natural frequency of the ~~one or more of the one or more~~plurality of elongated beams.

8. (currently amended) The apparatus of claim 1, further comprising:

a feedback component coupled with the first elongated beam;

wherein the feedback component provides feedback to a regulator component that serves to regulate one or more of the one or more drive oscillations of the one or more of the ~~one or more~~plurality of elongated beams.

9. (currently amended) The apparatus of claim 8, wherein the feedback component comprises a piezoresistor;

wherein the piezoresistor comprises a variable resistance that changes based on a magnitude of the one or more of the one or more drive oscillations of the one or more of the ~~one or more~~plurality of elongated beams;

wherein the piezoresistor provides feedback based on the variable resistance of the piezoresistor to the regulator component that serves to regulate the time-varying thermal gradient in the first elongated beam to cause the one or more drive oscillations of the one or more of the ~~one or more~~plurality of elongated beams.

10. (withdrawn) The apparatus of claim 8, wherein the feedback component comprises a capacitive sensor;

wherein the capacitive sensor comprises a variable capacitance that changes based on a magnitude of the one or more of the one or more oscillations of the one or more of the one or more elongated beams;

wherein the capacitive sensor provides feedback based on the variable capacitance of the capacitive sensor to the regulator component that serves to regulate the time-varying thermal gradient in the elongated beam to cause the one or more oscillations of the one or more of the one or more elongated beams.

11-24. (canceled)

25. (previously presented) The apparatus of claim 3, wherein the resistor conducts a time-varying electrical current to induce the Joule heating of the resistor.

26. (currently amended) The apparatus of claim 5, wherein the one or more drive oscillations of the one or more of the ~~one or more~~ plurality of elongated beams comprise a harmonic oscillation of the one or more of the ~~one or more~~ plurality of elongated beams.

27. (currently amended) The apparatus of claim 8, further comprising:

a plurality of feedback components that are coupled with one or more of the ~~one or more~~ plurality of elongated beams, wherein the plurality of feedback components comprise the feedback component.

28. (previously presented) The apparatus of claim 27, wherein the plurality of feedback components are arranged in a Wheatstone bridge;

wherein the regulator component and the Wheatstone bridge cooperate to regulate the time-varying thermal gradient through the resistor.

29. (previously presented) The apparatus of claim 28 in combination with the regulator component, wherein the regulator component comprises a difference amplifier.

30. (previously presented) The apparatus of claim 29, wherein the difference amplifier serves to amplify a current flow across a plurality of output terminals of the Wheatstone bridge;

wherein the regulator component employs the current flow across the output terminals of the Wheatstone bridge to regulate the time-varying thermal gradient through the resistor.

31. (currently amended) The apparatus of claim 30, wherein the heating element comprises a resistor that conducts a time-varying electrical current, wherein the time-varying electrical current induces a Joule heating of the resistor that causes the time-varying thermal gradient in the first elongated beam.

32. (currently amended) The apparatus of claim 31, wherein the regulator component regulates the time-varying electrical current through the resistor to keep a frequency and/or an amplitude of the one or more drive oscillations of the first elongated beam remain within a desired range.

33. (new) The apparatus of claim 1, wherein an angular velocity of the first elongated beam and the one or more drive oscillations induce a Coriolis effect on the first elongated beam that causes one or more transverse oscillations of the first elongated beam, wherein the one or more drive oscillations are orthogonal to the one or more transverse oscillations;

wherein the pickoff component senses one or more of the one or more transverse oscillations of the transverse elongated beam to provide feedback to a processor component that serves to measure a magnitude of the angular velocity of the transverse elongated beam

34. (new) The apparatus of claim 1, wherein the pickoff component comprises a piezoresistor;

wherein the piezoresistor comprises a variable resistance that changes based on a magnitude of the one or more of the one or more transverse oscillations of the transverse elongated beam;

wherein the piezoresistor measures the angular velocity of the transverse elongated beam based on the variable resistance of the piezoresistor.

35. (new) An apparatus, comprising:

a plurality of elongated beams;

a plurality of transverse beams;

a plurality of heating elements; and

a plurality of pickoff components coupled with the plurality of elongated beams;

wherein the plurality of elongated beams are aligned in a plane and along a substantially same direction;

wherein the plurality of transverse beams are aligned orthogonally to the plurality of elongated beams;

wherein the plurality of transverse beams support the plurality of elongated beams along one or more nodal points of the plurality of transverse beams;

wherein the plurality of heating elements comprise a heating element, wherein the plurality of elongated beams comprise an elongated beam, wherein the heating element is coupled with the elongated beam;

wherein the heating element induces a time-varying thermal gradient in the elongated beam to cause one or more drive oscillations of one or more of the plurality of elongated beams;

wherein an angular velocity of the elongated beam and the one or more drive oscillations induce a Coriolis effect on the elongated beam that causes one or more transverse oscillations of the elongated beam, wherein the one or more drive oscillations are orthogonal to the one or more transverse oscillations;

wherein the pickoff component senses one or more of the one or more transverse oscillations of the elongated beam to provide feedback to a processor component that serves to measure a magnitude of the angular velocity of the elongated beam.

36. (new) The apparatus of claim 35, further comprising:

a frame;

wherein the one or more nodal points of the plurality of elongated beams comprise a first nodal point and a second nodal point, wherein each elongated beam of the plurality of elongated beams comprises respective first and second nodal points;

wherein the plurality of transverse beams couple the plurality of elongated beams and the frame.

37. (new) The apparatus of claim 36, wherein the first nodal point of each elongated beam of the plurality of elongated beams is coupled on two opposing sides with the frame and/or the second nodal point of another elongated beam of the plurality of elongated beams;

wherein the second nodal point of each elongated beam of the plurality of elongated beams is coupled on two opposing sides with the frame and/or the first nodal point of another elongated beam of the plurality of elongated beams.

38. (new) The apparatus of claim 36, wherein the plurality of elongated beams comprises first, second, and third elongated beams, wherein the plurality of transverse beams comprises first and second transverse beams;

wherein the first nodal point of the first elongated beam is coupled with the second nodal point of the second elongated beam by the first transverse beam;

wherein the first nodal point of the first elongated beam is coupled with the second nodal point of the third elongated beam by the second transverse beam;

wherein the first transverse beam and the second transverse beam are coupled to the first elongated beam on opposing sides of the first nodal point of the first elongated beam.

39. (new) The apparatus of claim 38, wherein the first, second, and third elongated beams and the first and second transverse beams comprise an integral structure.